

WHAT IS CLAIMED IS:

1 1. An apparatus for producing a projected image on a
2 light sensitive material, wherein the projected image
3 represents graphic information that is divided into individual
4 pixels, and wherein further the image is projected in the form
5 of partial images that are laterally offset relative to each
6 other, said apparatus comprising:

7 a transmissive device for producing said partial
8 images,

9 a light source for generating light rays that pass
10 through the transmissive device,

11 an illumination device for guiding the light rays along
12 a plurality of mutually parallel light paths through the
13 transmissive device, and

14 a projection objective for projecting the light rays
15 representing the partial images onto the light-sensitive
16 material,

17 wherein the illumination device bundles the light rays
18 into light beams before they pass through the transmissive
19 device, and the projection objective projects onto the light-
20 sensitive material only those light rays that run at least

21 approximately parallel to the optical axis of the projection
22 objective.

1 2. The apparatus of claim 1, wherein the projection
2 objective comprises a telecentric objective.

1 3. The apparatus of claim 2, wherein the projection
2 objective projects onto the light-sensitive material only those
3 light rays that are within a maximum aperture angle between $+7^\circ$
4 and -7° relative to the optical axis of the telecentric
5 objective.

1 4. The apparatus of claim 2, wherein the projection
2 objective projects onto the light-sensitive material only those
3 light rays that are within a maximum aperture angle between
4 $+4.7^\circ$ and -4.7° , relative to the optical axis of the telecentric
5 objective.

1 5. The apparatus of claim 1 wherein the projection
2 objective comprises at least one of an adjustable objective
3 lens arrangement and an adjustable objective diaphragm
4 arrangement for changing the size of an exposure area of a
5 surface element covered by one of said light beams falling on
6 said light-sensitive material.

1 6. The apparatus of claim 1, further comprising at
2 least one adjustable illumination diaphragm as well as an
3 illumination lens arrangement disposed between the light source
4 and the transmissive device.

1 7. The apparatus of claim 1, wherein the illumination
2 lens arrangement comprises a condenser.

1 8. The apparatus of the claim 1, wherein the
2 illumination device is disposed between the light source and
3 the transmissive device, and wherein the illumination device
4 comprises a micro-lens matrix and a black matrix, said black
5 matrix being interposed between the micro-lens matrix and the
6 transmissive device.

1 9. The apparatus of claim 1, wherein the projection
2 objective has an optical axis, and wherein the illumination
3 device together with the transmissive device is position-
4 adjustable transversely to said optical axis to effect said
5 lateral offset of said partial images.

1 10. The apparatus of claim 1, wherein the projection
2 objective has an optical axis, and wherein the apparatus
3 further comprises an optical offsetting device to effect said
4 lateral offset of said partial images transversely to the

5 optical axis, said optical offsetting device being arranged
6 between the projection objective and the light-sensitive
7 material.

1 11. The apparatus of claim 10, wherein the optical
2 offsetting device comprises a first optical offsetting element
3 tiltable about a first tilt axis and a second optical
4 offsetting element tiltable about a second tilt axis, wherein
5 the first tilt axis and the second tilt axis are oriented at
6 right angles to one another and intersect said optical axis.

1 12. The device of claim 10, wherein the optical
2 offsetting device comprises a glass plate that is set in an
3 inclined position relative to said optical axis and is
4 rotatable about an axis of rotation coinciding with said
5 optical axis.

1 13. A method for producing a projected image on a
2 light sensitive material, wherein the projected image
3 represents graphic information that is divided into individual
4 pixels, and wherein further the image is projected in the form
5 of partial images that are laterally offset relative to each
6 other, said method comprising the steps of:
7 - representing the partial images by means of a transmissive

8 device,
9 - generating light rays,
10 - guiding the light rays along a plurality of mutually
11 parallel light paths through the transmissive device, and
12 - projecting the light rays carrying the partial images onto
13 the light-sensitive material,
14 wherein the light rays are bundled into light beams before
15 passing through the transmissive device and the light beams are
16 projected telecentrically onto the light-sensitive material.

1 14. The method of claim 13, wherein the light
2 sensitive material is selectable from a plurality of format
3 sizes and wherein the method further comprises a step in which
4 the size of an exposure area of a surface element covered by
5 one of said light beams falling on said light-sensitive
6 material is adapted to a selected format size of the light-
7 sensitive material so that there is at most a slight overlap
8 between adjacent exposed surface elements after all of said
9 partial images have been projected onto the light-sensitive
10 material.

1 15. The method of claim 13, wherein the light
2 sensitive material is selectable from a plurality of format
3 sizes and wherein the method further comprises a step in which

4 the number of partial images is selected depending on a
5 selected format size of the light-sensitive material in such a
6 manner that the size of an exposure area of a surface element
7 covered by one of said light beams falling on said light-
8 sensitive material remains substantially the same for all of
9 said plurality of format sizes.